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Docket No.: 002854-21

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Marion D. Skeen et al.)
Serial No. : 09/206,663) Art Unit: 2171
Filed : December 7, 1998) Examiner: C. Rones
For : Real Time Decision Support System)

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APPELLANT'S BRIEF PURSUANT TO 37 CFR §1.192

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In accordance with the provisions of 35 U.S.C. § 134 and 37 C.F.R. § 1.192(a), Appellants submit this Appeal Brief in triplicate to appeal the rejection of claims 1-20 in the Office Action mailed July 3, 2001.

REAL PARTY IN INTEREST

The named inventors have assigned all inventorship rights in the pending application to Vitria Technology, Incorporated, which is the real party in interest.

RELATED APPEALS AND INTERFERENCES

The appellants, their legal representatives, and the assignee are not aware of any other appeals of interferences which will directly affect or be directly affected by, or having a bearing on, the Board's decision on this appeal.

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STATUS OF THE CLAIMS

Claims 1-20 are pending in the subject application, of which claims 1 and 11 are independent. No claims have been deemed allowable by the Examiner. Claims 1-20, all of the pending claims, stand finally rejected based on 35 U.S.C. §102(b) as being anticipated by US patent 5,339,392 (Risberg et al.) This Appeal is directed to the rejection of the claims as they appear in Appendix A.

STATUS OF AMENDMENTS

The claims on appeal correspond exactly to the original claims filed on December 7, 1998 without amendment. The response after final filed on December 3, 2001 amended the specification to correct a minor typographical error. The Examiner has indicated that this amendment will be entered upon appeal. See the Advisory Action dated January 7, 2002. There are no outstanding claim amendments.

SUMMARY OF THE INVENTION

The present invention relates to methods and apparatus for query processing. The invention, as recited in independent claims 1 and 11, receives complex queries that are declarative and not programmatic. In other words, the queries recited in the claims are not executable commands but are specifications to be processed by a query engine. For example, as disclosed in the specification of the subject patent application, the query of the preferred embodiment includes a SELECT clause specifying a result to be returned in response to the query, a FROM clause which specifies a source of data, and a WHERE clause which specifies constraints. A query causes a query engine to select the specified information. See page 2, lines 8-12 of the subject application. A query describes results that the user is interested in. See page 11, lines 16-20 of the subject application. In the preferred embodiment, queries are structured in Object Query Language (OQL), see page 13 of the subject application, which is a specification for queries and which includes declarative

statements, not executable commands. The effect of the portions of applicants' disclosure noted above is to clearly define the claimed queries as being declarative specifications, not executable commands. This is consistent with the well accepted definition of "query."

Further, the invention, as recited in claims 1 and 11, includes providing for each of the queries an "executable query process furnishing a result when data sources satisfy constraints of the query." The query process comprises executable code for computing results containing the information specified by the corresponding query. See page 15, lines 13-15 of the subject application. The query processor responds to events and executes all query processes that correspond to queries having constraints satisfied by event to provide results of the queries.

Query processing can be optimized in various ways. For example, constraints of a query can be compared to attributes of an event to determine if the query process should be executed. See claims 2 and 12. Also, all query processes corresponding to queries having constraints satisfied by attributes of events can be executed simultaneously. See claims 3 and 13. Query processes can be persistent (claims 4 and 14) or they can be changed (claims 5 and 15). Results can be provided to users whenever and incremental change in a result occurs (claims 6, 7, 16, and 17). Finally, the data sources can be event sources and the data can be historical data.

STATEMENT OF ISSUES

Whether claims 1-20 are anticipated by Risberg et al.

GROUPING OF THE CLAIMS

Claims 1 and 11 stand or fall together. Claims 2 and 12 stand or fall together. Claims 3 and 13, stand or fall together. Claims 4 and 14, stand or fall together. Claims 5 and 15, stand or fall together. Claims 6 and 16, stand or fall

together. Claims 7 and 17, stand or fall together. Claims 8 and 18, stand or fall together. Claims 9 and 19, stand or fall together. Claims 10 and 20, stand or fall together. Otherwise all of the pending claims are separately patentable and stand or fall independently of one another.

ARGUMENTS

Claims 1-20 are not anticipated by Risberg et al. because Risberg et al. does not disclose the function of responding to an event to execute processes for all queries having constraints satisfied by a data source. In particular, Risberg et al. discloses software for composing "active documents," i.e., video displays of real time data in a user definable style. See column 2, lines 31-34. The software disclosed in Risberg et al. runs on a single computer to define a display for the user of that computer. This reference also discloses that "scripted commands" can be executed if real time data exceeds preset limits. The scripted commands are programmatic commands, i.e. commands that are executed in sequence. See column 10, lines 9-11 of Risberg et al. The software disclosed in Risberg et al. automatically subscribes to proper sources of the real time data to be displayed in the active documents. See column 2, lines 39-44, column 4, lines 58-67, and column 8, lines 63-67 for example. Accordingly, Risberg discloses an event driven publish/subscribe architecture similar to that discussed in the subject application. See page 10 of the application. Risberg also discloses that an event can cause extraction from a specified field of a data object that is to be displayed and that a scripted command can be executed if the data field exceeds a limit. See column 23, lines 56-67 for example.

In contrast, the invention, as recited in independent claims 1 and 11, receives complex queries that are declarative and not programmatic. In other words, the queries recited in the claims are not executable commands but are specifications of data to be processed by a query engine. For example, as disclosed in the specification of the subject patent application, the query of the preferred embodiment includes a SELECT clause specifying a result to be

returned in response to the query, a FROM clause which specifies a source of data, and a WHERE clause which specifies constraints. A query causes a query engine to select the specified information. See page 2, lines 8-12 of the subject application. A query describes results that the user is interested in. See page 11, lines 16-20 of the subject application.

In the preferred embodiment, queries are structured in Object Query Language (OQL), see page 13 of the subject application, which is a specification for queries and which includes declarative statements, not executable commands. The effect of the portions of applicants disclosure noted above is to clearly define the claimed queries as being declarative specifications, not executable commands. This is consistent with the well accepted definition of "query." In interpreting a claim, its literal language, the specification, the prosecution history, and the language of other claims must be considered. McGill, Inc. v. John Zink Co., 736 F.2d 666, 672-75, 221 USPQ 944, 948-50 (Fed. Cir.), cert. denied, 469 U.S. 1037 (1984). Words of a claim are given their ordinary and usual meaning unless it appears from the patent disclosure that the inventor intended to define them differently. Hoganas AB v. Dresser Industries, Inc., 9 F.3d 948, 951 (Fed. Cir. 1993); Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 759 (Fed. Cir. 1992); ZMI Corp. v. Cardiac Resuscitator Corp., 844 F.2d 1576, 1579 (Fed. Cir. 1988). Therefore, the Examiner must look to the specification and prosecution history when construing the language of the claims. Clearly, the claimed term "query" should be interpreted as a declarative specification.

The Examiner indicates that claimed queries read on the scripted commands of Risberg et al. See the bottom of page 2 of the Office Action. However, the software disclosed in Risberg et al. filters data of event objects based on predetermined limits and executes the script if the data exceeds the limits. The scripts are not queries but are display instructions or other executable commands as noted above. See column 9, lines 61-65 and column 10, lines 6-11, for example. Significantly, because the scripts disclosed in Risberg et al. are

executable commands, the scripts are not “queries.” While the event driven system disclosed in Risberg et al. could utilize queries to select desired data, this reference fails to disclose “means for responding to an event to initiate execution of all query processes having constraints satisfied by data sources” or the corresponding function of such means, as recited in claim 1. Similarly, Risberg et al. Fails to disclose the step of “responding to events by executing all query processes having constraints satisfied by data sources...” as recited in claim 11. In fact, the Examiner has failed to even assert that any portion of Risberg et al. discloses such a function. The Examiner alleges that Risberg et al, discloses every other element of claims 1 and 11 but omits this critical element.

In the Advisory Action dated January 7, 2002, the Examiner takes the position that Risberg et al discloses that, “...objects can be a query and that a script is an object. Therefore, a script can be a query.” This logic is fundamentally flawed. For example, this logic is analogous to stating that “vehicles can be boats and that a car is a vehicle. Therefore, a car is a boat.” A car is not a boat, and just like the Examiner’s assertion that the scripts of Risberg et al. correspond to the claimed queries, a car will not float. For these reasons, independent claims 1 and 11 are not anticipated by Risberg et al. and the rejection thereof should be reversed.

Claims 2 and 12, recite comparing constraints of a query with attributes of an event . The Examiner deems this function reads on comparing data fields of a database as disclosed in Risberg et al. However, as noted in the subject application, a database index merely yields a set of data records containing a particular value. In contrast, the claimed constraint index and related comparison yields a set of queries having constraints satisfied by an event. Claims 2 and 12 are believed to be allowable for this reason also. With respect to claims 3 and 13, Risberg et al. discloses a “brute force” method in which any queries are executed in seriatim and not simultaneously as claimed.

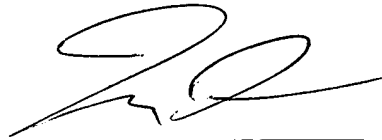
Claims 4 and 14 recite that query processes are persistent. Risberg et al. fails to disclose persistent query processes. Claims 5 and 15 recite that query

processes can be changed. Risberg et al. fails to disclose this function. Claims 6 and 16 recite providing results to users whenever a query result changes incrementally. Risberg et al. fails to disclose this feature. Claims 7 and 17, recite determination of incremental query result changes. Risberg et al. fails to disclose this feature. With respect to claim 9 and 19, the result of any queries used in Risberg et al. is merely a display of data and not an event service as recited in the claims. Claims 10 and 20 recite that the data sources contain historical data. Risberg et al. relates to display of real time data and not historical data. The dependent claims are allowable for these additional reasons.

CONCLUSION

For the foregoing reasons it is respectfully asserted that pending claims 1-20 of the present application are clearly patentable over the prior art of record. Appellants respectfully request that the outstanding rejections of record be reversed, that such pending claims be allowed and that the present application be passed to issue.

Respectfully submitted,



Marc Kaufman
Reg. No. 35,212

MSK:dk

NIXON PEABODY LLP
8180 Greensboro Drive
McLean, Virginia 22102
Telephone: (703) 790-9110
Facsimile: (703) 883-0370

APPENDIX A

1. A computer-implemented real-time decision support system comprising:
 - means for receiving complex queries posed by a plurality of users;
 - means for providing for each of the queries an executable query process furnishing a result when data sources satisfy constraints of the query;
 - means for providing data sources, the data sources including an event source;
 - means for responding to an event furnished by an event source to initiate execution of all query processes having constraints satisfied by data sources; and
 - means for furnishing results of executed query processes to users.
2. A system as claimed in Claim 1 in which the means for responding to an event comprises means for providing an index for testing whether constraints of a query process match attributes of events.
3. A system as claimed in Claim 1 in which all query processes having constraints matching attributes in an event are executed simultaneously.
4. A system as claimed in Claim 1 in which a query process is persistent until removed.
5. A system as claimed in Claim 1 in which the means for providing for each of the queries an executable query process includes means for changing the query processes for which results are required.

6. A system as claimed in Claim 1 in which the means for furnishing results of executed query processes to users comprises means for providing results to users whenever incremental changes in query results occur.

7. A system as claimed in Claim 6 in which the means for providing results to users whenever incremental changes in query results occur includes means for determining incremental changes in query results.

8. A system as claimed in Claim 1 in which the data sources comprise an event service.

9. A system as claimed in Claim 1 in which the means for furnishing results of executed query processes to users comprises an event service.

10. A system as claimed in Claim 1 in which the means for providing data sources comprises means for providing historical data.

11. A process for providing the incremental results caused by incrementally-occurring changes in data to complex queries comprising the steps of:

receiving complex queries posed by a plurality of users,
generating an executable query process for providing results required by each of the queries,
receiving data including events from data sources,

responding to events by executing all query processes having constraints satisfied by data sources to provide results required by each of the queries, and

furnishing results of executed query processes to users.

12. A process as claimed in Claim 11 in which the step of responding to events comprises testing whether constraints of a query process are satisfied by attributes of events.

13. A process as claimed in Claim 11 in which all query processes having constraints satisfied by data sources are executed simultaneously.

14. A process as claimed in Claim 11 in which a query process is persistent until removed.

15. A process as claimed in Claim 11 in which the step of generating an executable query process includes a step of changing the query process for which results are required while the process is functioning.

16. A process as claimed in Claim 11 in which the step of furnishing results of executed query processes to users comprises a step of providing results to users whenever incremental changes in query results occur.

17. A process as claimed in Claim 16 in which the step of providing results to users whenever incremental changes in query results occur includes a step of determining incremental changes in query results.

18. A process as claimed in Claim 11 in which the step of receiving data including events from data sources utilizes an event service to furnish events.

19. A process as claimed in Claim 11 in which the step of furnishing results of executed query processes to users utilizes an event service.

20. A computer-implemented process as claimed in Claim 11 in which the step of receiving data including events from data sources includes receiving historical data from a source of historical data.